DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-000141
Date Inspected: 27-Apr-2007

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 800
OSM Departure Time: 1730
Location: Shanghai, China

CWI Name: Huang Wei

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No		
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☐ Yes	☑ No	☐ N/A	
Qualified Welders:	☐ Yes	☑ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A	
Approved Drawings:	☐ Yes	☐ No	☑ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A	
				Approved WPS:	☐ Yes	☑ No	☐ N/A	
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A	

Bridge No: 34-0006
Component: N/A

Summary of Items Observed:

The CALTRANS Quality Assurance (QA) Inspector, Alfredo Acuna was present for the welding qualification testing pertinent for the welding qualification record (PQR) HP200776 scheduled for this project. ZPMC, welder Zhuhai Ping was observed by the QA Inspector performing welding operations following the preliminary welding procedure specification PWPS-B-T-3211 for the PQR identified as HP200776. Base metal was designated as A-709M-HPS-485W/Z25 (Heat # 06103445N) and appeared to meet the fracture critical requirements. The root opening of the joint was approximately 6 mm. ZPMC followed AWS 5.13 Production procedure WPS using shielded metal arc welding (SMAW) process in the flat (1G) position with the 4.0 mm diameter Excalibur E9018M-H4R electrode. The QA Inspector verified amperages, voltages, travel speeds, preheat and heat interpass temperatures. The QA inspectors recorded welding parameters for a total of 3 passes. The QA inspectors observed that the welding parameters taken by ZPMC QA inspectors Hu Gang and Huang Wei appeared to be accurate and in accordance with the contract documents.

Summary of Conversations:

ZPMC representative Hu Gang presented to the QA inspector the PWPS-B-T-3211 prior welding. The minimum preheat temperature listed on the PWPS was 100° C in lieu of 180° F as per table 12.4 and special provisions. The QA inspector had a conversation with ABF QC Supervisor Nate Lindell. The QA inspector brought to the attention of Mr. Lindell that the minimum preheat temperature listed on the PWPS appeared no to be in compliance with contract documents. Mr. Lindell agreed and requested ZPMC to change the minimum preheat temperature listed on the PWPS. ZPMC revised the preheat temperature on the PWPS as per the special provisions.

ZPMC representative Huang Wei presented a mill test certificates for the plates A-709M-HPS-485W/Z25 used on

the PQR HP200776. The QA inspector observed that the Quenched and Tempered Heat Treatment temperatures were not included in the mill certificate reports as per A709/709M-04 specifications. The QA inspector had a conversation with Mr. McClary. The QA inspector brought the attention of Mr. McClary that the Quenched and Tempered Heat Treatment temperatures were not listed in the mill test certificates for the HPS-485W/Z25 plates as per A709M-04 specifications.

After the welding on the PQR HP200776 started, the QA had aconversation with Mr. McClary. The QA inspector brought to Mr. McClary attention that ZPMC was welding the test coupon for the PQR-HP200776 with Low-Hydrogen SMAW electrodes Excalibur E9018M H4R that had been exposed to the atmosphere approximately for one (1) hour and ZPMC was attempting continuing welding following Section 5 and AWS A5.5 specification with 9 hours of allowable atmospheric exposure time in lieu of AWS D1.5-02 table 4.7 as amended by section 12.6.5.8 and 12.6.5.9 (one (1) hour of allowable atmospheric exposure time for Grade HP 485 W (70W)). Mr. McClary relayed to the QA inspector that the A5 filler metal specification requirements were not considered sufficient for welding primary bridges members. Therefore, the WPSs required being qualified by Section 5 and as amended for Fracture Critical Members as described in Section 12.
The QA inspector had a conversation with Mr. Song. The QA inspector brought of Mr. Song attention that the electrodes were exposed to the atmosphere for approximately one (1) hour and according with AWS D1.5-02 Table 4.7 the maximum allowable atmospheric exposure time was one (1) hour. After Mr. Song conversation with ZPMC representatives, ZPMC agreed to relocate the electrodes exposed back to the oven and start using electrodes directly from the electrical portable holding oven.

Note: See Task Leader Journal for additional information.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Acuna,Alfredo	Quality Assurance Inspector
Reviewed By:	McClary,David	QA Reviewer